UNITED STATES PATENT AND TRADEMARK OFFICE

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10/773,804	02/06/2004	Akira Yamanaka	17474US02	8463

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte AKIRA YAMANAKA and IASON VASSILIOU

_____

Appeal 2009-005461
Application 10/773,804
Technology Center 2600

_____

Before JOHN C. MARTIN, THOMAS S. HAHN,
and ELENI MANTIS MERCADER, *Administrative Patent Judges.*

MANTIS MERCADER, *Administrative Patent Judge.*

DECISION ON APPEAL[1]

_____

[1] The two-month time period for filing an appeal or commencing a civil
action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing,
as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE"
(paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery
mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the final rejection of claims 1-23. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

INVENTION

Appellants' claimed invention is directed to measuring characteristics of transceiver components and computing the necessary correction parameters to correct any analog imperfections in the circuits. Correction of nonidealities includes estimation of I (in-phase) and Q (quadrature) signal path mismatch in the transmitter and the receiver IQ mismatch. *See* Spec. 10.

Claim 1, reproduced below, is representative of the subject matter on appeal:

1. A method for measuring IQ path mismatch in transceivers, the method comprising:
estimating a transmitter IQ mismatch in a form of gain and phase response for transmitter I and Q paths sharing a receiver path; and
estimating a receiver IQ mismatch in a form of gain and phase response for receiver I and Q paths sharing a signal source.

THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Chien	US 2004/0203472 A1	Oct. 14, 2004
Kim	US 7,155,180 B2	Dec. 26, 2006

The following rejections are before us for review:

1. The Examiner rejected claims 1, 2, 5-8, 11-13, 18, 19, 22, and 23 under 35 U.S.C. § 102(e) as being anticipated by Kim.

2. The Examiner rejected claims 3, 4, 9, 10, 14-17, 20, and 21 under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Chien.

ISSUES

The pivotal issues are whether:

1. Appellants have persuaded us of error in the Examiner's finding that Kim teaches the limitation of claim 1 of reciting "estimating a transmitter IQ mismatch in a form of gain and phase response for transmitter I and Q paths sharing a receiver path."

2. Appellants have persuaded us of error in the Examiner's finding that Kim discloses measuring a difference in the gain and phase response between the transmitter I and Q paths and between the receiver I and Q paths, as recited in claim 2.

3. The Examiner met the burden of showing that Kim's digital filter is inherently an FIR filter.

PRINCIPLES OF LAW

The allocation of burdens requires that the USPTO produce the factual basis for its rejection of an application under 35 U.S.C. §§ 102 and 103. *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984) (citing *In re Warner*, 379 F.2d 1011, 1016 (CCPA 1967)). The one who bears the initial burden of presenting a prima facie case of unpatentability is the Examiner. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

"On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness." *In re Kahn*, 441

F.3d 977, 985-86 (Fed. Cir. 2006) (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

Appellants have the burden on appeal to the Board to demonstrate error in the Examiner's position. *Id.*

> If the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if that element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient."

In re Robertson, 169 F.3d 743, 745 (Fed. Cir. 1999) (internal citations omitted).

ANALYSIS

Anticipation Analysis

Appellants argue (App. Br. 6-9) that Kim does not teach the limitation of claim 1 reciting "estimating a transmitter IQ mismatch in a form of gain and phase response for transmitter I and Q paths sharing a receiver path." Appellants contend this claim language is unmet in two respects. First, Appellants point out (App. Br. 7) that Kim's Figure 9, which the Examiner relies on, shows that the transmitter Mismatch Estimation block receives its input from the receiver IQ output path and not from the transmitter IQ path (*id.* at 7, 9). This argument is unpersuasive because it is not commensurate in scope with claim 1. Although claim 1 recites "estimating a transmitter IQ mismatch in a form of gain and phase response for *transmitter* I and Q

paths" (emphasis added), the claim does not preclude this estimate from being derived from the *receiver* I and Q paths.

Appellants' second argument is that the transmitter I and Q paths of Kim do not share a receiver path (*id.* at 9). This argument is unpersuasive because it is not supported by a specific explanation of *which* claim terms do not read on Kim and *why*.

Accordingly, we will affirm the Examiner's rejection of claim 1 and for similar reasons the rejections of claims 7 and 18 as Appellants rely on the same arguments (App. Br. 8).

Appellants further argue (App. Br. 10, 15), with respect to claims 2, 8, 13, and 19, that Kim does not disclose any measuring of *a difference* in the gain and phase response *between* the transmitter I and Q paths *and between* the receiver I and Q paths for purposes of estimating a transmitter IQ mismatch and a receiver IQ mismatch. Appellants explain that Kim (col. 9, ll. 40-45) only teaches making the phase difference between in-phase and quadrature-phase components of the local signal to be a predetermined value. While we agree with the Examiner (Ans. 7) that Kim teaches deriving gain and phase compensation values from the sum of square values of the I and Q components (col. 9, ll. 43-44), we do not see where Kim teaches measuring the *difference* between the transmitter I and Q components or the *difference* between the receiver I and Q components. Thus, we will reverse the Examiner's anticipation rejection of claims 2, 8, 13, and 19.

For the same reason, we will reverse the anticipation rejection of claims 5, 6, 11, 12, 22, and 23, which depend on claims 2, 8, 13, and 19.

However, we will also address Appellants' argument (App. Br. 11-15) that Kim fails to anticipate a FIR filter as recited in claims 5, 11, and 22, and also fails to anticipate filter tap parameters as recited in the respective dependent claims 6, 12, 23. The Examiner in the Final Rejection relied (Final Rej. 3) on inherency to find that Kim's digital filter (col. 10, ll. 25-26) is a digital FIR filter and that Kim inherently teaches using filter tap parameters during compensating. The Examiner in the Answer (Ans. 8) states that "[i]t is well [k]nown and documented in the art that [a] digital filter is functionally equivalent to both FIR filter and equalizer" which "are also both well known to perform feedback estimation."

The Examiner, we find, did not bear the initial burden of presenting a prima facie case of anticipation, because Kim's digital filter is not necessarily an FIR filter. *See Oetiker*, 977 F.2d at 1445. While an FIR filter is a digital filter, a digital filter is not necessarily an FIR filter. *See Robertson*, 169 F.3d at 745. Accordingly, we are also reversing the Examiner's rejection of claims 5, 6, 11, 12, 22, and 23 for this additional reason.

Obviousness Analysis

Appellants argue that claims 3, 4, 9, and 10 are patentable because, *inter alia*, they respectively depend from claims 2 and 8, which are contended to not be anticipated (App. Br. 16-17). Further, Appellants assert that Chien does not overcome the argued deficiencies of Kim (*id.*). From our review, we agree that Chien does not cure Kim's deficiency addressed *supra*, because Chien does not teach measuring the *difference between the transmitter and receiver* I and Q components. Accordingly, we will reverse the rejection of claims 3, 4, 9, and 10. Appellants make similar arguments

for claims 14-17, 20, and 21, which respectively depend from claims 13 and 19 (*id.*). Again, for reasons addressed *supra*, we will also reverse the Examiner's rejection of claims 14-17, 20, and 21.

CONCLUSIONS

1. Appellants have not persuaded us of error in the Examiner's finding that Kim teaches the limitation of claim 1 of reciting "estimating a transmitter IQ mismatch in a form of gain and phase response for transmitter I and Q paths sharing a receiver path."

2. Appellants have persuaded us of error in the Examiner's finding that Kim discloses measuring a difference in the gain and phase response between the transmitter I and Q paths and between the receiver I and Q paths, as recited in claim 2.

3. The Examiner did not meet the burden of showing that Kim's digital filter is inherently an FIR filter.

ORDER

The decision of the Examiner to reject claims 1, 7, and 18 is affirmed. The decision of the Examiner to reject claims 2-6, 8-17, and 19-23 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2010).

AFFIRMED-IN-PART

babc

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